

INTRODUCTION TO WEB GRAPHICS

Understanding the Basics of Web Graphics

In this chapter, you will:

- ◆ Learn the basics of Web graphics
- ◆ Understand the difference between vector and bitmap graphics, and the software you use to create and edit them
- ◆ Get started with Adobe Photoshop and ImageReady
- ◆ Learn to manipulate images
- ◆ Learn the concepts, terminology, and methods involved in working with Web graphics

Twenty-five years ago, computer graphics were of interest only to scientists, programmers, and other professionals who had access to high-end, powerful computers. When desktop computers with graphical interfaces became popular in the mid-1980s, the mainstream population was exposed to computer graphics for the first time, and they responded enthusiastically. Now that the World Wide Web, Windows, and other graphical user interfaces are so widespread, many people view and use computer graphics on a daily basis—whenever they turn on a computer.

Adobe Photoshop is the most popular program used to create computer graphics. Adobe also publishes graphics software called ImageReady, which is similar to Photoshop, but has special features for creating Web-only graphics such as animations, image maps, and rollover buttons. This chapter introduces you to these programs.

When you are familiar with the basic tools of Adobe Photoshop and ImageReady, you will be ready to manipulate images. You also will have a chance to practice navigating and editing images, and learn some techniques to use for creating professional Web graphics.

The expanding Internet industry will likely continue to provide job opportunities for professionally trained, skilled Web graphic artists.

APPRECIATING THE VALUE OF WEB GRAPHICS

Web graphics are sometimes dismissed as mere decoration, but effective graphics enhance a Web site, and make it easier to use and understand. As people surf the Web, viewing one page after another, they quickly decide whether to stay and explore a site or move on. According to Nielsen/NetRatings, Inc., the average user in September 2000 spent between 50 and 55 seconds viewing a Web page before clicking away. Users quickly leave unattractive, uninformative sites, but stay at useful, well-designed ones.

As a Web designer, you must make your images count—they must be appealing, informative, and easy to interpret. When viewed on a standard monitor, Web pages have a fixed, limited size, and every square inch of those pages needs to be used efficiently. A well-designed graphic often uses less space than a full paragraph of text, yet can be more informative and functional.

Understanding Web Graphics

Although Web graphics did not even exist ten years ago, for many of us, they are now an integral part of our lives. Without graphics, the Web would be much less informative and interesting. Before you start creating Web graphics, you must first understand the terminology that describes graphics for the computer in general, and for the Web in particular.

The quality of Web graphics also affects viewers' perceptions of a Web site. A background image that obscures text, or an image with jagged edges, gives an impression of amateur or careless work. Poor-quality graphics can negatively affect the rest of the site, and make the content and services seem unprofessional as well. On the other hand, high-quality graphics reassure users that the site is worthy of their trust and time, and users are more likely to believe that the products and services the site offers will also be high-quality.

Understanding Common Computer Graphics Terms

A computer graphic is different from a drawing on a piece of paper because a drawing is an actual image, while a computer graphic is an **image file** and an **image display**. The image file is a set of instructions that tells the computer what to show on the monitor; the image display is the image that consequently appears on the monitor.

To edit a paper drawing, you physically add or remove pigment. However, to edit a computer graphic, you edit the instructions in the appropriate computer file. When you use a graphics program, you have the illusion that you are directly manipulating an image, but the process is actually more indirect. The signals from your mouse and keyboard tell the software to change the image file; the edited image then appears on your monitor.

Image displays are grids of tiny squares of colors. Each square is called a **pixel**, which is short for picture element. The grid of pixels is called a **bitmap**. An image file that produces a grid of pixels is called a bitmap file. Paint-type graphics programs typically let you create bitmap images, and treat images as collections of dots, not shapes.

Another type of image file is a **vector**. A vector file is a small program that describes the position, length, and direction of lines. A vector file contains instructions on how to draw pixels, rather than information about the pixels. Draw-type graphics programs typically let you create vector images, which are collections of lines, not patterns of individual dots or pixels.

When a vector file is executed, the graphics software renders a new bitmap image display. Rendering produces a graphic image from a data file to an output device such as a monitor. The act of rendering a vector image file into a bitmap image display is called **rasterizing**. Bitmap images that are created from vector images are sometimes called **raster** images, or rasterized images. Figure 1-1 shows the bitmap image created after rasterizing a vector image.

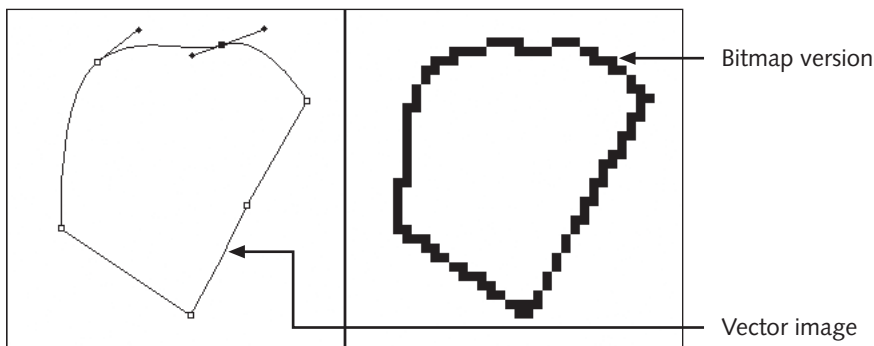


Figure 1-1 A vector image and its rasterized bitmap version

The grids of pixels in bitmap images are measured in terms of **resolution**, or how many pixels the monitor can display in an inch. Resolution is measured in pixels per inch, **ppi**; or in dots per inch, **dpi**. Most monitors have a display resolution of 72 ppi, so a bitmap image that is 72 pixels high and 144 pixels wide appears one inch high and two inches wide. Bitmap images are **resolution-dependent**, because the resolution of the monitor determines the size of the image. If the bitmap image in the previous example appeared on a monitor with a resolution of 96 ppi, it would be only three-quarters of an inch high and one and one-half inches wide.

In contrast, a vector image is not measured in pixels, and can appear at any size, regardless of the monitor's resolution. Vector images are **resolution-independent**—their size is not affected by the resolution of the display device. However, when a vector image is rasterized into a bitmap image, the raster image *is* resolution-dependent.

WORKING WITH GRAPHICS SOFTWARE

Adobe Photoshop is the software most often used for creating graphics for the Web and for other media such as print. You can use Photoshop to create vector images, but its main function is creating and editing bitmap images. After you work with an image, you should preview it in a Web browser such as Internet Explorer or Netscape Navigator. You can preview images in Photoshop, but most of the time you should preview them in a Web browser, where the images ultimately will appear. Browsers can display Web pages and graphics, but cannot be used to edit the graphics.

Working with Vectors

A vector is a line segment with a specific length and direction. A vector-based image is composed of lines, curves, and geometric shapes. These lines have no thickness, only length, direction, and degree of curvature. (Pixels, on the other hand, have a uniform size and a specific color and position in the bitmap grid.)

The lines and shapes of a vector image can be either **stroked** or **filled** to make the lines and shapes in the final image. Vectors themselves do not appear in the final image, but they do determine where colors will appear. When a line is stroked, it is given a thickness and color. A line can be filled only when it loops on itself to form a complete closed shape. A shape can be filled with a solid color, a color gradient, or a pattern. Figure 1-2 shows a raster image created from a vector file.

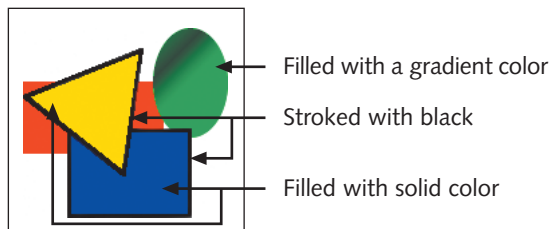


Figure 1-2 A raster image

To create complex images with vectors, you must separately define every area of solid color so that the image looks like a cartoon or a paint-by-numbers kit. Vector images are limited because they cannot reproduce rich texture very well. Photographs are never represented as vector images because a separate vector shape has to be defined for every spot of detail in the image. Vector images are appropriate for simple images, such as line art and graphs.

As mentioned earlier, one advantage to using vector images is that they are resolution-independent, so changes to the image dimensions do not affect the image quality. Because vector images are resolution-independent, they also can be scaled to any size without changing the image quality or the size of the image file. This is not true for bitmap images, which are resolution-dependent. When you increase the dimensions of

bitmap images, the resolution decreases accordingly, resulting in jagged edges instead of smooth lines. The size of bitmap image files also is linked directly to the image dimensions, so a larger image means a larger file. Figure 1-3 shows a vector image and a bitmap image that have been doubled in size.

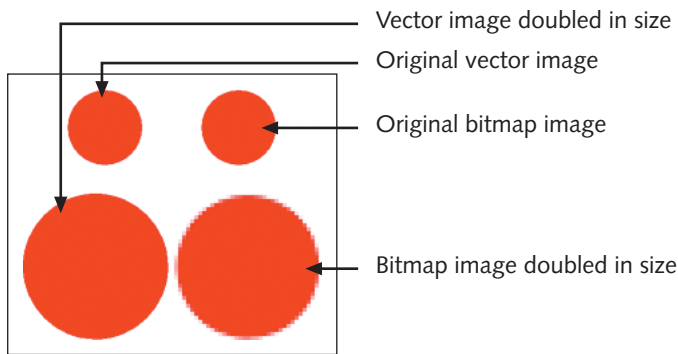


Figure 1-3 A scaled vector image and a scaled bitmap image

While vector images tend to have smaller file sizes and scale better than bitmaps, Web browsers do not display vector images. Browsers display only bitmap images, so any vector image must be rasterized before a browser can display it. Browsers use small programs to rasterize vector images into bitmaps on the user's computer; these programs are called **plug-ins**. Plug-ins have other functions, but one of the most common is converting vector images to bitmaps to display those images in a Web browser.

Dissecting a Vector Image

In Photoshop, vectors are referred to as **paths**, and vectors that form complete loops are called **shapes**. Recall that vector images are simple programs—line-by-line commands that tell the computer what to display. A sample vector file might contain the following code, and produce the image shown in Figure 1-4.

```
create background {  
    width=4;  
    height=4;  
    color=white;  
}  
create square {  
    upper-left corner: x=1, y=1;  
    lower-right corner: x=3, y=3;  
    color=red;  
}
```

The code tells the computer to draw a white background that is four pixels wide and four pixels high. The second instruction is to draw a red square two pixels wide and two pixels high in the middle of the background.

To add more shapes, you add instructions to the file, and specify the shapes you want. Adding instructions makes the image more complex and increases its file size. The preceding code has only eight lines of commands, so the file is less than one kilobyte in size.

The vector file size, however, does not reflect the actual size of the image. For example, if you change the image in Figure 1-4 so that the background is 400 x 400 pixels, the dimensions of the image change, but the file size remains about the same. The size of a vector image file is directly related to the complexity of the image—how many shapes the image contains. This is the primary advantage of vector images: changing the dimensions of the image has no effect on the quality of the image.

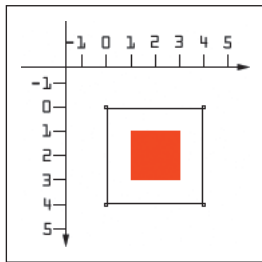


Figure 1-4 A vector image

Using Software Tools with Vector Images

When you work with vector images, you do not edit the instructions directly. You use an illustration program such as Macromedia FreeHand, Adobe Illustrator, or CorelDraw for editing. The tools in these programs act as an interface between you and the image file. As you work with an on-screen image, the illustration program makes the appropriate changes to the file. These drawing programs also work with lines and shapes and create vector image files, which can then be rasterized into bitmap images and displayed on a Web page. Additionally, illustration programs let you perform common vector-editing tasks, such as creating simple line art or technical diagrams.

Rasterizing Vector Images

Vector images were perfect for old-style line printers. Those printers had a mechanical arm with a stylus that drew shapes according to the instructions in the image file. Modern printers and computer monitors, however, do not print or display images that way. They work with grids of pixels and display one pixel after another in a horizontal row, and line by line vertically from top to bottom. Look closely at your computer screen, and you can see the individual pixels that make up every desktop icon, character, window, and graphic.

To display a vector image on the screen in this pixel-grid style, an illustration program has to render, or rasterize, the image by executing the vector image file and generating a map of pixels, known as a bitmap. The vector image is composed of lines and geometric shapes, as mentioned earlier, and rasterizing the vector image converts these lines and shapes onto

a grid of pixels. The new bitmap image file contains none of the vector information in the original file. The bitmap file simply lists the color value of each pixel in the grid. Figure 1-5 illustrates how a program rasterizes a vector image by converting it to a bitmap image.

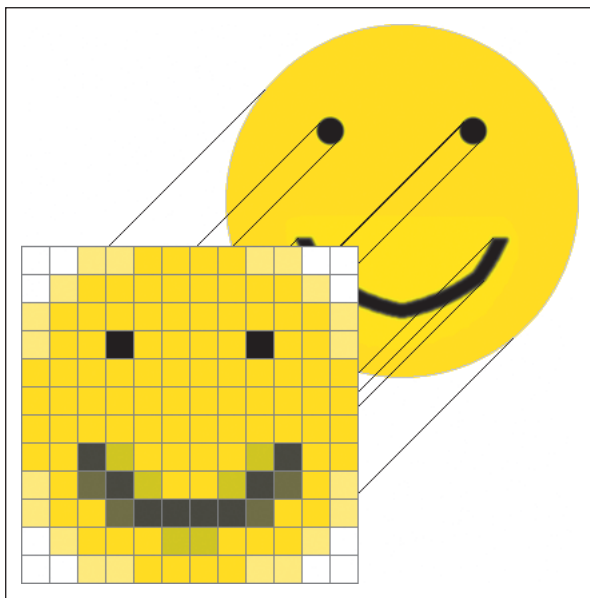


Figure 1-5 Rasterizing an image

Working with Bitmaps

Bitmap images have two advantages over vector images: They display texture better and do not need to be rasterized to appear in a Web page, so they do not require the use of a plug-in.

The amount of detail in a vector image is limited by the number of shapes the image has, but the detail in a bitmap image is limited by the number of pixels. A small bitmap image that appears as a one-inch square on a standard monitor has over five thousand separate pixels. A vector image with many shapes is so complicated that the process of rasterizing it into a bitmap image takes several seconds to place each shape. The level of detail possible in bitmap images has a cost, however. Bitmap files tend to have much larger file sizes than do vector images. Although bitmap files can contain more texture and visual information, they take longer to download.

Vector images and bitmap images are fundamentally different in the way they store information. Whereas a vector image file is a list of the shapes included in the complete image, a bitmap image file is simply a list of pixels, each one with its own color. To define

the shape in Figure 1-4 using a bitmap, the image file might contain the following code, and then create the image shown in Figure 1-6.

```
0,0 = white
1,0 = white
2,0 = white
3,0 = white
0,1 = white
1,1 = red
2,1 = red
3,1 = white
0,2 = white
1,2 = red
2,2 = red
3,2 = white
0,3 = white
1,3 = white
2,3 = white
3,3 = white
```

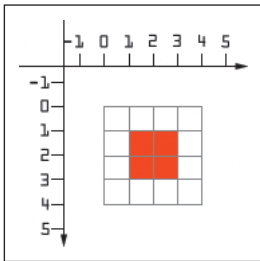


Figure 1-6 A bitmap image file

Notice that the axes are centered in the upper-left corner of the image. This is how Web graphics are always defined. The pixel grid numbers the columns from left to right, starting with zero, and numbers the rows from top to bottom, also starting with zero.

The image in Figure 1-6 is not complex, and the dimensions are small, so the vector image in Figure 1-4 is not noticeably different from the bitmap version shown in Figure 1-6. Imagine doubling the width of each image. To do so, you change only a few numbers in the vector image file—set the width to eight instead of four. In the bitmap image, however, you must define the color for twice as many pixels—the new image has the same number of rows but twice the number of columns. That doubles the information in the image file, and thus doubles the file size.

As explained earlier, the file size of a vector image is affected by how complex the image is, not how big it is when it appears. Figure 1-7 shows what happens if the image in Figure 1-4 is scaled, or resized, to double its original width. This new image has larger dimensions but does not have a larger file size.

On the other hand, because bitmap images are resolution-dependent, the dimensions of a bitmap image affect the size of the bitmap file. Doubling the width or height of a bitmap image roughly doubles the file size. Figure 1-8 shows what happens if Figure 1-6 also is scaled to double the original width. The number of pixels doubles, making the file size larger.

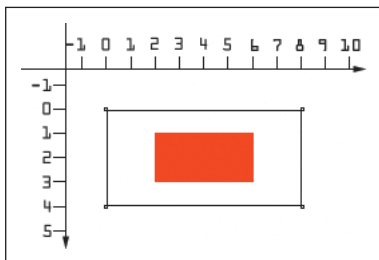


Figure 1-7 A scaled vector image

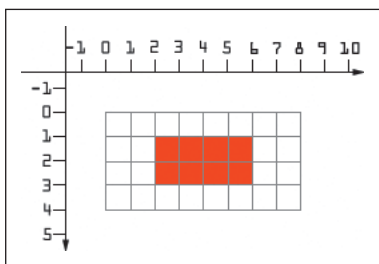


Figure 1-8 A scaled bitmap image

All Web graphics must be transferred over networks, from the Web servers where they are stored to users' computers and Web browsers. Images with smaller file sizes are transferred more quickly than are image files with larger sizes. Much of your work in creating Web graphics involves keeping file sizes as small as possible.

When you choose to use either vector or bitmap images, first determine which type produces the image that you desire, and then decide which type is most convenient for the user to view.

Printing and Viewing Graphics

Although you do most of your graphics work with a paint-like editor such as Photoshop, occasionally you will use a drawing program such as FreeHand or Illustrator to create a vector-based logo or figure. A printed vector image usually is much cleaner than a printed bitmap image. You've seen this if you've ever printed a Web page; the bitmap graphics were probably fuzzy instead of crisp.

To display the vector images on the Web, however, you must **export** the image into a bitmap. This is the same process as when a drawing program rasters the drawing, converting it into a bitmap. Although it's easy to convert a vector image to a bitmap image, it's nearly impossible to convert a bitmap to a vector image. As shown in Figure 1-9, you can rasterize a vector image so you can display it on a computer monitor, in a bitmap graphic, or on a printer. You can display a bitmap graphic on a monitor or printer, but you cannot convert it to a vector image.

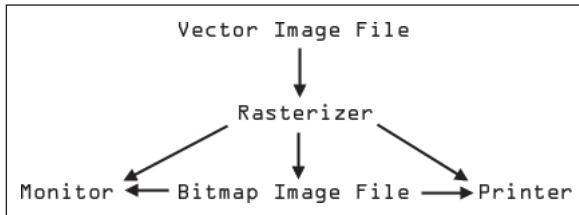


Figure 1-9 Relationship between vector and bitmap images

In general, vector images download quickly, but do not display texture detail as well as bitmap images. Always use bitmap images for photographs.

Web browsers cannot display vector images; they display bitmap images only. A browser uses a plug-in to rasterize vector images into bitmap images that can be shown in the browser. Because browsers require plug-ins to display vector images, you use bitmap images for almost all Web graphics.

GETTING STARTED WITH ADOBE PHOTOSHOP AND IMAGEREADY

The most recent version of Adobe Photoshop, version 6.0, comes bundled with Adobe ImageReady, version 3.0. ImageReady and Photoshop both are used to create and edit computer graphics, but ImageReady has fewer features and is designed specifically for creating Web-only graphics such as animations. Photoshop has more general features and can be used to create graphics for print, software, or the Web. To complete the steps and exercises in this book, you must use Photoshop and ImageReady.

Choosing Web Graphics Tools

Software that works with vector images are typically called **drawing programs**, while software that lets you manipulate bitmap images are called **image editors**. Some examples of drawing programs are Adobe Illustrator, CorelDraw, and Macromedia FreeHand. Because drawing programs produce vector images, and because vector images have better print quality than bitmap images, you usually use drawing programs for print projects such as magazine ads or letterheads. You also can use them to design graphics such as logos that appear in print and on the Web.

However, image editors are what you will most often use to create Web graphics, such as Adobe Photoshop and Macromedia Fireworks. You also can use many freeware and shareware programs such as PaintShop Pro or The GIMP to edit images. (Most editors can open image files created in other editors.)

Becoming Familiar with Your Work Environment

Before you can become fully proficient with any software, you first must become familiar with the software's features and how they work. Every Photoshop version has more features than the last, and can overwhelm new users. Many features are redundant, and simply provide different ways to do the same thing. Take some time to investigate Photoshop and ImageReady, and learn which tools you will use frequently, and which you will use only in special circumstances. Not only is Photoshop an excellent tool for designing and creating graphics, but it also provides a well-designed interface, with easy-to-access features. The following sections introduce you to the Photoshop and ImageReady palettes, tools, and menus. Figure 1-10 shows the Photoshop environment components—the menu bar, Options bar, Image window, toolbox, status bar, and all palettes.

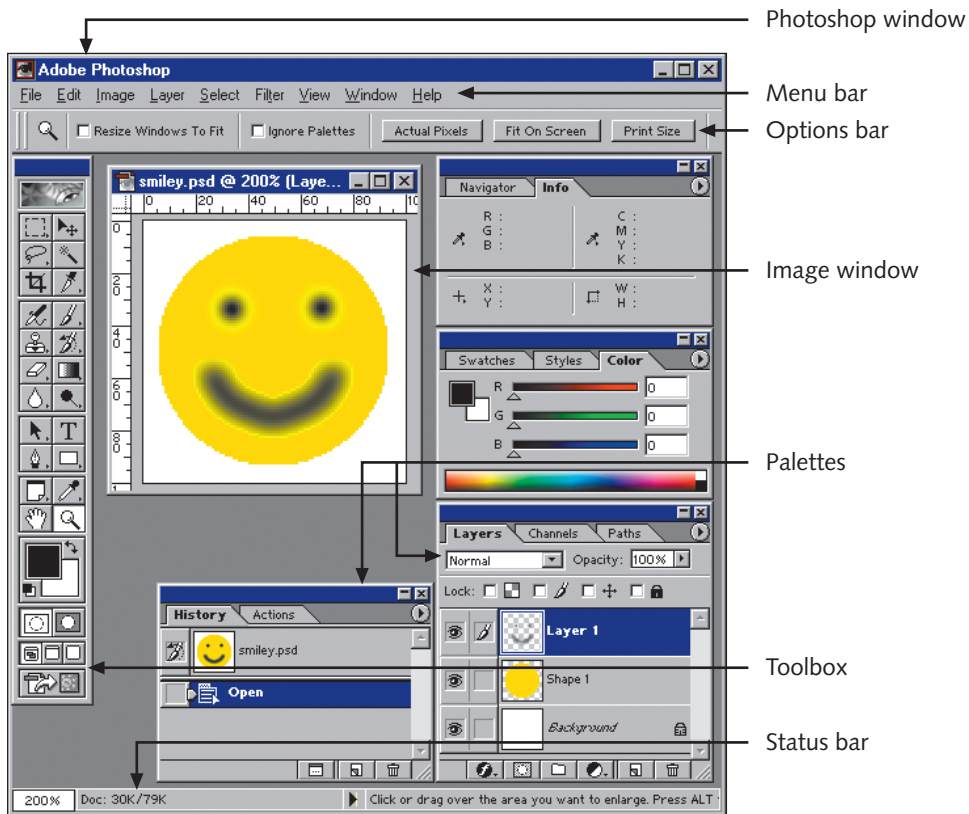


Figure 1-10 The Photoshop environment

Using Palettes

The Photoshop work area contains several windows in addition to the window that displays the image. These additional windows are called **palettes**, and they contain tools, commands, and settings. You use palettes to select options for tracking and editing images. You select colors from the Color palette, parts of images from the Layers palette, tools from the toolbox, and so on.

Most palettes are grouped together to save space on the desktop, but you can open a single palette by dragging its tab. The palettes contain a triangle in the upper-right section of the palette window. Click the triangle to open a menu of options for the palette. These options change depending on which palette you select. For example, click the triangle on the Swatches palette and you see a menu of options for creating and editing color swatches. Figure 1-11 shows options for working with the Channels palette.

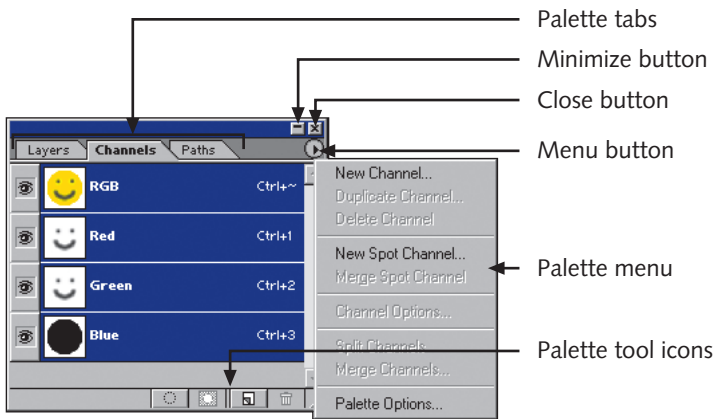


Figure 1-11 Channels palette options

To save room on your desktop, you can minimize or close the palettes. To re-open them, click Window on the menu bar, and then click the command to show the palette you need. For example, to open the Color palette, click Window on the menu bar, and then click Show Color.

Info Palettes The Info palettes provide general information about the image in the Image window, and include the Navigator palette and the Info palette itself. The Navigator palette shows you a small version of the opened image. You use the Navigator palette to change the scale of the image display in Photoshop. The Info palette, shown in Figure 1-12, shows you information about colors and dimensions of the image. You use the Info palette to see information about the color value and position of individual pixels in the image. ImageReady includes an additional Info palette called the Optimize palette. The Optimize palette shows information about the size of the image file, and allows you to shrink the image file without affecting the quality of the image.

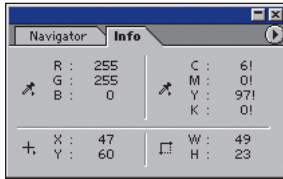


Figure 1-12 The Info palette

Color Palettes The Color palette shows you the selected color and lets you select new colors by sliding bars or entering numerical color values. The Swatches palette, illustrated in Figure 1-13, shows a table of commonly used colors. You use the Swatches palette to select colors without having to indicate their numerical values. The Style palette contains effects you can add to images. ImageReady uses the Color Table palette, which shows information about the colors used in the image. ImageReady also uses the Layer Options/Style palette, which shows information about effects used in the image.

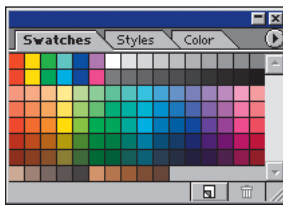


Figure 1-13 The Swatches palette

Action Palettes The Action palettes include the History palette, which lets you track your actions, and the Actions palette, which lets you create and edit a series of commands, which you then can play back on one or more files. The History palette, shown in Figure 1-14, lists recent edits made to the image. You can undo commands and reverse most edits you have made to an image by selecting different states in the History palette. The Actions palette contains sequences of edits that you can run as scripts. The Actions palette allows you to automate certain processes so that you do not have to perform the same sequence of edits manually on multiple images.

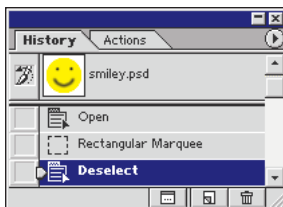


Figure 1-14 The History palette

View Palettes A number of palettes, including the Layers, Channels, and Paths palettes, let you work with different parts of the image. The Layers palette shows information about layers used in the image. Layers are like sheets of transparent film laid on top of each other, each containing different parts of an image. You use layers to manipulate individual pieces of an image. The Layers palette is shown in Figure 1-15. The Channels palette shows information about colors used in the image. You can modify color channels independently to create interesting visual effects. A color channel is the set of all shades of a particular color. A full-color image has three color channels, one for all shades of red, one for green, and one for blue. A color image is the combination of the color channels. The Paths palette shows information about vectors used in the image.

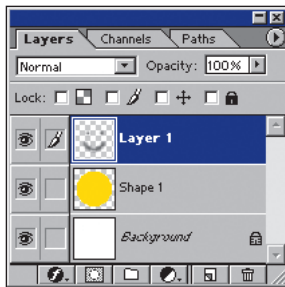


Figure 1-15 The Layers palette

Web Effects Palettes (ImageReady Only) Photoshop is an all-purpose image editing program that lets you create images that can be displayed in print, on the Web, or in digital video projects. ImageReady is primarily used to create images for the Web. It shares many features with Photoshop, but does not contain some tools that are appropriate for print projects only. However, ImageReady does contain some Web-only features that are not available in Photoshop.

The following four ImageReady-only palettes are generally used for creating Web-only graphics such as image maps, and buttons that change when rolled over with the mouse.

- The Animation palette is where you compose animated images. You usually save these files as simple animations that play on a Web page, though you can also save them as complicated movies that users can download from a Web site.
- The Rollover palette lets you create **rollover effects**. Rollover effects involve dynamically replacing one image with another when the user's mouse rolls over the image, for example, when you point to a button and it changes color or position. The Rollover palette is shown in Figure 1-16.
- The Image Map palette shows information about images being used as **image maps**. Image maps are normal images that can link to multiple destinations.
- The Slice palette shows information about **slices**, which are pieces of a single image that are saved as separate images.

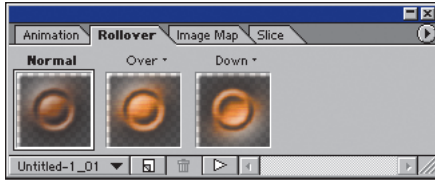


Figure 1-16 The Rollover palette

Text Palettes You use the Character and Paragraph palettes to manipulate text in your images. The Character palette lets you control settings for fonts. The Paragraph palette lets you adjust the alignment and justification of text. The Character palette is shown in Figure 1-17.

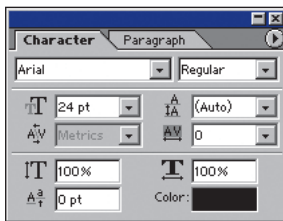


Figure 1-17 The Character palette

Tool Palettes The toolbox and Options bar are considered tool palettes because they let you work with the Photoshop and ImageReady tools. The toolbox contains the tools you use to edit images, and is shown in Figure 1-18.

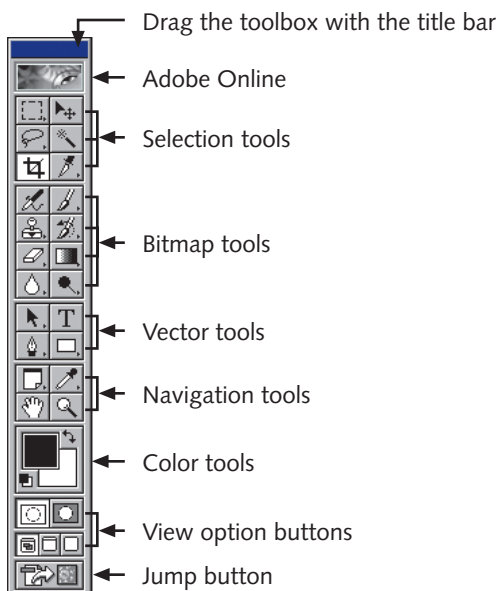


Figure 1-18 The toolbox

The Options bar contains settings for the toolbox tools, and is shown in Figure 1-19. For example, when the Magic Wand tool is selected in the toolbox, the Options bar displays options for tolerance and when the selection should be anti-aliased. When the Paintbrush tool is selected in the toolbox, the Options bar displays options for the size of the brush and the quality of the mark produced by the brush.

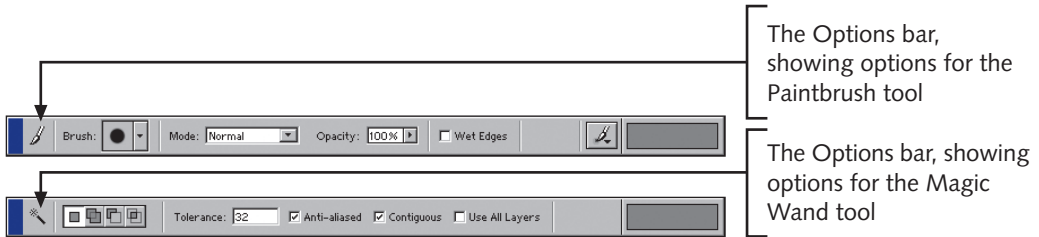


Figure 1-19 The Options bar

Using the Toolbox

You often use the toolbox when working with Photoshop and ImageReady. The toolbox contains most of the tools you use to manipulate images. For example, you use tools to select parts of the image, add color, magnify, and move images. Each tool has its own pointer to indicate how it affects the image. Some buttons on the toolbox are not tools, but are quick ways to adjust settings. The following sections briefly describe each tool in the toolbox. They are described in more detail in following chapters.

Adobe Online

Click the Adobe Online logo in either Photoshop or ImageReady to visit the Adobe Web site where you can access online help and find software upgrades.

Selection Tools

The selection tools let you select a specific group of pixels, or divide the image into separate pieces. See the Acquiring Images chapter for more details about using the selection tools listed below:

- The Marquee tools create elliptical and rectangular selection areas.
- The Move tool lets you drag selected areas to other parts of the image.
- The Lasso tools let you create selection areas of any shape.
- The Magic Wand tool lets you click a pixel and then select pixels in the image that are similar in color to the pixel you clicked. You can then manipulate all of these pixels at once with a tool, filter, or command.
- The Crop tool selects an area of an image. Double-clicking the selected area discards all of the image area outside the currently selected area.

- ImageReady includes one selection tool not offered in Photoshop—the Image Map tool. You use this tool to define linked areas in image maps. Image maps are single images that can link to different destinations.
- The Slice tool is similar to the Crop tool, but instead of selecting one area and discarding the rest, you can use the Slice tool to split the entire image into many slices that are all saved as separate images.

Bitmap Tools

The Bitmap tools listed below allow you to change the colors of pixels in an image by adding patterns, and by adding, removing, lightening, or darkening colors. See the Acquiring Images chapter for more details about using the Bitmap tools.

- The Airbrush tool lets you paint over the image using the foreground color, creating a spray paint effect. Holding the pointer over one area increases the intensity of the painted line.
- The Paintbrush tool is similar to the Airbrush, but holding the pointer over an area does not affect the painted line. The edges of lines painted with the Paintbrush tool are not as soft as those painted with the Airbrush tool.
- The Pencil tool also is similar to the Airbrush, but lines created with the Pencil have a hard edge.
- The Clone Stamp tools let you copy area in the image and use that area as a texture with which to paint. These tools are useful for retouching photographs.
- The History Brush tools let you change the patterns of pixels in your image. As you make changes to an image, Photoshop keeps a copy of the original. When you use the History Brush tool to paint over an image, instead of applying color, it applies the pixels which have been retrieved from the original version of the image. The Art History Brush applies random patterns to the image as you paint across it and creates soft, pseudo-Impressionist style effects.
- The Eraser tools let you erase pixels instead of adding them when you drag the pointer over an image. The Magic Eraser tool works like the Magic Wand tool; first you click a pixel containing the color you want to delete, and then, only pixels that are similar in color to the pixel you clicked are erased.
- The Gradient tool covers the entire image with both the foreground and background colors, fading from one color to the other.
- The Paint Bucket tool fills an area with the foreground color. It also affects pixels of similar color to the one you click.
- The Blur tool softens the edges in images, while the Sharpen tool exaggerates them. The Smudge tool lets you drag pixels across an image, creating a smeared effect.
- The Dodge tool lightens the area you paint over, and the Burn tool darkens them. The Sponge tool lets you remove color from an area without affecting the shapes and contrast in the image.

Vector Tools

Vector tools allow you to create and edit vector paths and text, or type. Photoshop is not considered a vector program because it is used primarily to generate bitmap images. However, the newer versions of Photoshop contain tools that create vectors within bitmap images. These vectors are called **paths** in Photoshop and ImageReady, and must be rasterized into bitmap information before the image can be saved as a bitmap file. A list of vector tools in Photoshop and ImageReady follows:

- The Path Selection tool lets you select individual paths to modify or reposition.
- The Type tool adds text to images.
- The Pen tools do not draw lines the way the Paintbrush or Pencil tools do. Pen tools allow you to create and edit vector paths.
- The Shape tools create closed paths such as ellipses, rectangles, and polygons.

Navigation Tools

Use the navigation tools listed below to find out information about an image, or to navigate around an image.

- The Documentation tools let you add text or audio notes to images.
- The Eyedropper tools let you sample the color value of a given pixel and set the foreground color to that color value.
- The Measure tool gauges the distance between any two pixels.
- The Hand tool lets you navigate to different parts of the image. If the image is larger than the Image window in which it appears, you can adjust the visible part of the image by moving the scroll bars on the right and bottom of the Image window.
- The Zoom tool is also called the Magnifying Glass tool and allows you to change the scale at which the image appears. Using this tool does not change the dimensions of the image, only how it appears in Photoshop or ImageReady.

Color Tools

You use the color tools to control the foreground color used by the Painting tools, and the background color used by the Eraser tools. The Photoshop and ImageReady Color tools are listed below:

- Set Foreground Color
- Set Background Color
- Default Foreground and Background Colors
- Switch Foreground and Background Colors

View Options

You use the View Option buttons listed below to switch between different view settings. Normally, you will work only with the default settings, but occasionally you will need to preview your work in a different way, using one of the following:

- Toggle Image Map Visibility (ImageReady only)
- Toggle Slices Visibility (ImageReady only)
- Rollover Preview (ImageReady only)
- Preview in Browser (ImageReady only)
- Selection View Mode
- Screen Mode

Jump

You click the Jump button to open the current image file in the alternate Adobe image editing program. For example, clicking Jump in Photoshop opens the image in ImageReady, and clicking Jump in ImageReady opens the image in Photoshop.

Using Menus

The menus in Photoshop and ImageReady contain commands that affect the image file and/or the image display. According to Macintosh and Windows standards, most of these commands have keyboard shortcuts which are indicated next to the commands in the menu. Many commands open dialog boxes where you choose related settings and options. For example, you choose Image Size from the Image menu to open the Image Size dialog box, where you then can specify the width and height of an image. You also can point to many commands to open submenus that list related commands. A list of each Photoshop and ImageReady menu follows, with a brief description of the most commonly used commands.

- The File menu lists commands that work with image files. Among those commands are Open, Close, Save, and Print images.
- The Edit menu includes the Copy, Paste, and Undo commands. It also includes the Preferences submenu, which lists options, such as saving files or using units of measurement, to set your preferences for working with Photoshop.
- The Image menu lists commands to adjust the colors in an image as well as commands to change the dimensions of an image.
- The Layer menu lists commands to rasterize vector image information into bitmap information, and commands to work with layers in an image.
- The Slices menu is included in ImageReady only. This menu lists commands that manipulate separate pieces of an image, known as slices.

- The Select menu lists commands that work with the Marquee, Lasso, and Magic Wand tools to control the selection areas in an image.
- The Filter menu lists 14 submenus of filters, that affect entire images or selections of images. You use filters to create special effects, such as blurring or adding texture in images.
- The View menu includes commands that affect the way the image appears in the Photoshop window, but do not change the image file itself. This menu contains an option to Show Rulers, which displays a pair of rulers above and to the left of the image. Rulers are helpful because they let you see the dimensions of your images. Figure 1-20 demonstrates an image with rulers showing.

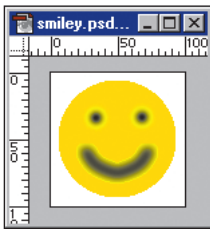


Figure 1-20 An image with rulers showing

The Window menu lists commands that affect the appearance of the windows and palettes used by Photoshop.

The Help menu contains links to information about Photoshop, ImageReady, and Adobe.

Documenting Images

Photoshop has two tools that allow you to add comments to an image. The Notes tool lets you add a text box to an image. The text box is associated with a particular spot on the image and can be useful when collaborating on an image. The Audio Annotation tool allows you to add a spoken message to the image. This tool requires that you have a microphone on your computer. Both of these types of documentation can be saved only in the special Photoshop PSD format, and cannot be viewed over the Web. Figure 1-21 shows the Notes and Audio Annotation tools in the toolbox.

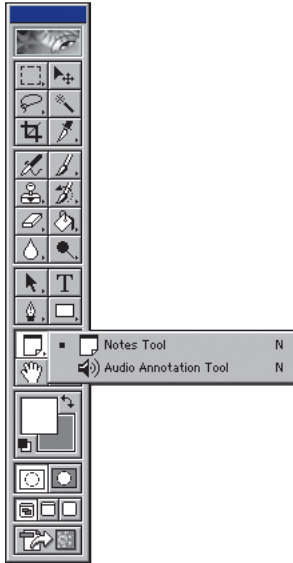


Figure 1-21 The Notes and Audio Annotation tools

Setting Preferences

You can set a variety of preferences to customize your work on Photoshop and ImageReady. On the File menu, point to Preferences to see a submenu of ten options. Choose a Preference option to open the Preferences dialog box, where you can change general settings, such as the units used on rulers and in measurements. Before you begin working with Photoshop to create Web graphics, you need to change the Units & Rulers setting. Graphics intended for print output are usually measured in inches. Graphics used on a Web page, however, are usually measured in pixels. Therefore, you must make sure that the rulers on the Image window use pixels as the measurement unit.

To change the measurement units used in Photoshop:

1. Click **Edit** on the menu bar.
2. Point to **Preferences**, and then click **Units & Rulers**. You see the Preferences dialog box, as shown in Figure 1-22.
3. In the Units area, click the **Rulers** list arrow, and then click **pixels**.

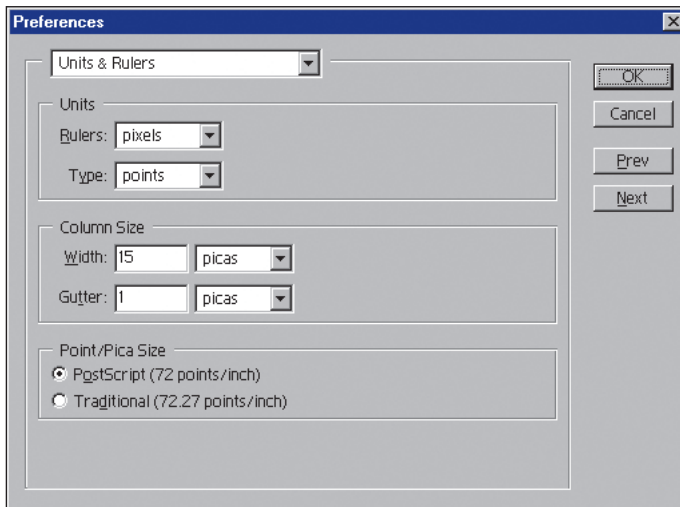


Figure 1-22 The Preferences dialog box

MANIPULATING BITMAP IMAGES WITH PHOTOSHOP

Most of your work creating Web graphics involves editing bitmap images, probably using Photoshop or a similar graphics program. While you use some features of Photoshop only in special circumstances, you use other features for your work with almost every image. The features you use most often change the scale and dimensions of an image, and reverse edits you make to an image. Each of these frequently used features is discussed in the following sections.

Changing the Scale of Bitmap Images

You often will want to change the scale of an image without changing the actual image file. You need to be able to magnify (zoom in) and reduce (zoom out) your view of the image without altering the actual dimensions of the image.

The easiest way to zoom in and out is with the Magnifying Glass tool, also called the Zoom tool.

To change your view of an image using the Zoom tool:

- To zoom in, click the **Zoom** tool, and then click the **image**; to zoom out, hold down the **Option** key on the Macintosh, and click the **image**.



In Windows you can zoom out by clicking the Zoom tool, holding down the Alt key, and then clicking the image.

You also can drag the Zoom tool across the image to zoom in to the selected area, as shown in Figure 1-23.

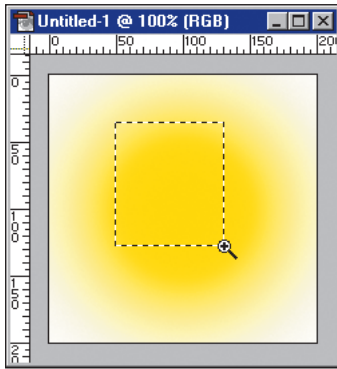


Figure 1-23 Dragging the Zoom tool across an image

Besides using the Zoom tool, you can also change magnification using menu options and the Navigator palette.

To change magnification using menu options:

1. Click **View** on the menu bar, and then click **Fit on Screen** to zoom in on the image so that its outer edges reach the edges of the Photoshop work area.
2. To return the magnification to 100%, click **View** on the menu bar, and then click **Actual Pixels**; you also can double-click the **Zoom** tool.

To change magnification using the Navigator palette:

1. To control magnification in the Navigator palette, shown in Figure 1-24, use the slider at the bottom of the palette. Drag the **slider** to the left to reduce magnification, and to the right to increase magnification.
2. The area of the current image is surrounded by a red border. Drag the **red square** to change which part of the image you view in the Image window. You also can use the Hand tool to drag the image in the Image window.

The status bar at the bottom of the Photoshop window indicates the current percentage of scale. For example, 100% indicates that the image appears at its true size. A scale of 200% means the image appears twice as large as it really is, with half the resolution. A scale of 50% means the image appears only half as large as its true size. You can type directly on the status bar to change the scale.

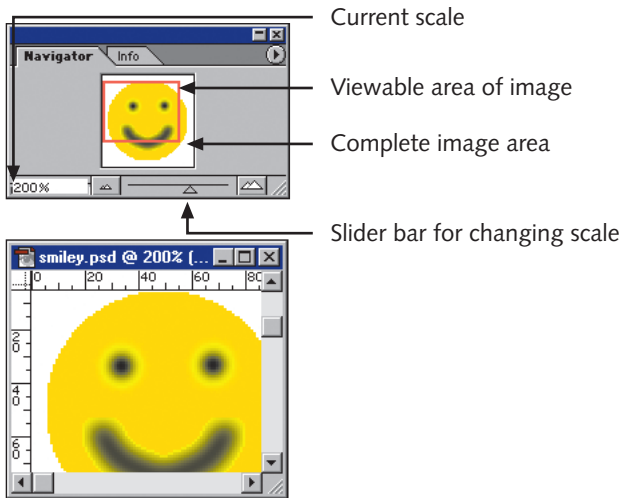


Figure 1-24 Using the Navigator palette for zooming

Changing the Dimensions of Bitmap Images

Changing the scale of an image means altering the height and width of how the image appears in Photoshop. Changing the scale does not affect the image file and does not affect how the image appears in a browser. Changing the dimensions means changing the actual height and width of an image. In Photoshop, the term **canvas** refers to the dimensions of an image. An image's canvas size is its height and width in pixels.

In Photoshop you alter image dimensions with the Image Size and Canvas Size tools. Image Size lets you stretch or shrink the image, while Canvas Size lets you pad or crop the image. When you select the Canvas Size tool, you see the Canvas Size dialog box, shown in Figure 1-25, where you can specify how much you want to pad or crop the image.

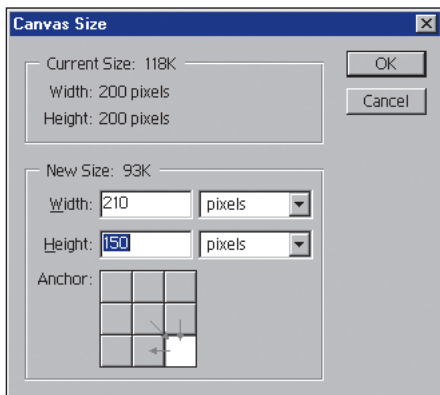


Figure 1-25 The Canvas Size dialog box

When you pad or crop, you change the size of the canvas, but not the image itself. For example, you could crop an image of a cloud over a tree to remove the cloud. The dimensions of the cropped image are smaller, but the size of the tree stays the same. Stretching and shrinking with the Image Size tool affects both the canvas size and the image size. For example, if you shrink the image of the cloud over a tree, you reduce the size of the cloud and the tree, as well as the amount of space they take up in the window.

Figure 1-26 illustrates the effect of using the Image Size command in Photoshop. To familiarize yourself with these tools, use the Image Size option to stretch and shrink an image, and use the Canvas Size command to change an image's viewable area, while maintaining the size of the elements within that image.

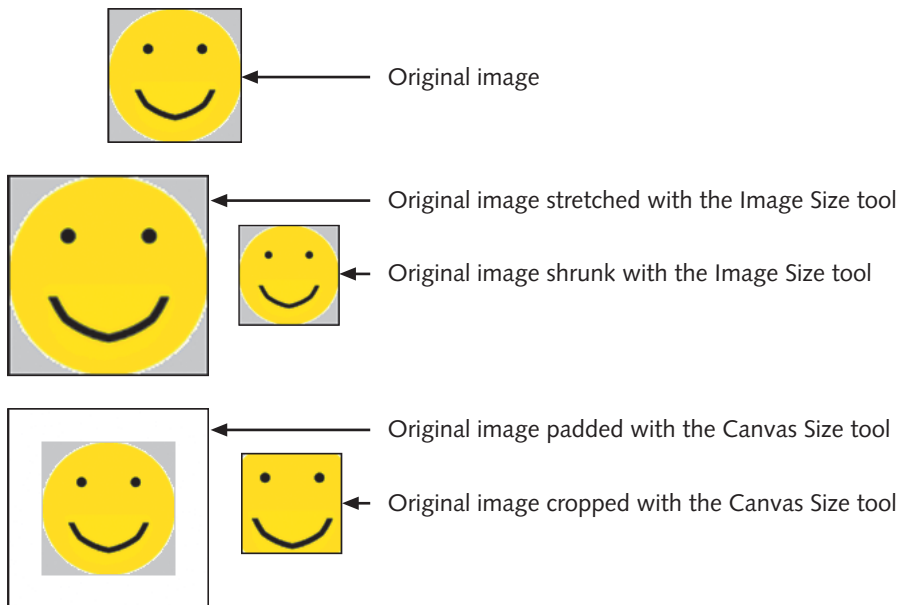


Figure 1-26 Padding and cropping

Padding means increasing the width or height of an image, and includes filling the new space with background color, while cropping actually cuts away from the image to fit a new size. By setting an anchor point in the Canvas Size window, you can control the direction of the padding or cropping. For example, if you select the center anchor point, padding or cropping occurs evenly on all sides of the image. If you select another anchor point, padding or cropping occurs on the opposite side of the image.

The Canvas Size dialog box illustrated in Figure 1-25 has settings that pad the selected image by adding 10 pixels to the left side, and crop the image by cutting 50 pixels from the top.

The following steps show you how to pad and crop an image using the Canvas Size tool.

To pad and crop an image using the Canvas Size tool:

1. Open the image file **pad.tif** from the Data Disk.
2. Click **Image** on the menu bar, and then click **Canvas Size**. The Canvas Size dialog box illustrated in Figure 1-25 appears and shows the current dimensions of the image.
3. Set the Width to **100 pixels** and the Height to **150 pixels**. Select the top-center **anchor box**. Click **OK**. When you see a confirmation dialog box, click **Proceed**.
4. Review the image, which should appear narrower, but taller. The image itself has not been stretched or shrunk, but the right half of the image should be gone, and an extra 30 pixels of space should be added to the bottom.
5. Save the image as **pad.tif** in the Chapter 1 folder on your hard drive.

Besides using the Canvas Size dialog box, you also can crop with the Crop tool, or use the Trim command to crop away the background. The Trim command removes the margins around an image, based on similar colors. If the color edges are uneven, the image is cropped at the point where a new color starts. The Trim command works only if an image's background is a uniform color.

To pad and crop an image using the Crop tool:

1. Open the image file **crop.tif** from the Data Disk.
2. Select the **Crop** tool.
3. Drag the pointer over the **object** in the image. A selection box appears.
4. Drag the **selection tabs** to adjust the selection area.
5. To set the crop, double-click inside the selection area, or click **Image**, and then click **Crop**. The image is cropped to the specified size.
6. Click **Edit** on the menu bar, and then click **Undo Crop**.
7. In the Options bar, set the Width to **50** and the Height to **75**.
8. Drag the pointer over the image again. This time the ratio of height to width is constrained. Adjust the selection tabs to completely enclose the figure.
9. Double-click inside the selection area. The image is cropped and resized to 50 × 75 pixels.
10. Save the image as **crop.tif** in the Chapter 1 folder on your hard drive.

Changing Your Mind

Photoshop and ImageReady contain several ways for you to change edits you have made to an image. Like most software, Photoshop and ImageReady have an Undo command that reverses your most recent edit, whether it is running a filter, making a selection, or using a tool. You can specify a maximum number of steps the Undo feature can reverse.

To set the maximum number of steps Undo can reverse:

1. Click **Edit** on the menu bar, point to **Preferences**, and click **General**.
2. The General dialog box opens. In the History States text box, enter the maximum number of steps you want Undo to reverse. The default number of history states for the Undo command is 20. If you increase this number, Photoshop runs more slowly.

You can see all the past edits made to an image in the History palette, where you also can review recent changes and delete multiple edits. The history is deleted, or purged, when an image is closed. After saving an image, you cannot use the Undo command to reverse changes made before the save. You can, however, use the Step Backward command to view the image without the most recent edit. The Step Backward command is available on the Edit menu, and from the History palette. This command does not delete the edits, it only lets you see the image without them.

To delete your changes, perform one of the following activities:

- In the History palette, select the changes you want to delete, and then click the trashcan icon.
- Drag the changes you want to delete to the trashcan icon.
- Click the History palette list arrow, and then click Delete.
- To quickly delete all the changes you made to an image, click File on the menu bar, and then click Revert. Using the Revert command returns the image to the way it was when it was last saved, or last opened if you did not save it.

PULLING IT ALL TOGETHER: AN OVERVIEW OF PROFESSIONAL WEB GRAPHICS

This chapter introduced you to the basic concepts of Web graphics and the tools and techniques you use to create them. In the remaining chapters, you will learn more detailed methods for creating graphics for the Web.

There are several distinct types of Web graphics, and a number of concepts associated with each type. This book is structured so that each remaining chapter covers one type of graphic or one concept. The chapters are grouped together into three main sections: Basic, Intermediate, and Advanced Web Graphics. The following sections provide an overview of Web graphics so you know what to expect as you work through the book.

Basic Web Graphics: Optimizing, Displaying, and Acquiring Images

The first third of this book covers general topics about computer graphics and issues about Web graphics that apply to every project on which you work. These general topics include an introduction to Photoshop, optimizing images, displaying graphics in Web pages, and acquiring images to use on the Web.

An Overview of Optimizing Images

Optimizing refers to making the image file size as small as possible without compromising the quality of the image—your major goal in creating graphics for the Web. Currently, the limiting factor on the Web is bandwidth. Regardless of the size or quality of your computer or your Web server, most users have to wait a few seconds before your Web page is downloaded and rendered on the page. In the next five to ten years, broadband technology should remedy this. Until then, every Web page must be as small as possible to minimize the download time.

Most Web files, whether HTML, image, or other format, have extra space in the file that is not used for anything crucial. Just as a sponge has pockets of air inside it that contribute to the volume of the sponge without contributing to the mass, computer files often have unused space that does not add any value. Optimizing means squeezing out this unnecessary space from the files. Every graphic you create, whether it be a logo, an animation, or an image map, must be optimized.

An Overview of Displaying Images

After you optimize your images, you incorporate them into a Web page and preview them in a browser so you know how they will appear on users' screens. To include images on a Web page, you need to use and understand HTML code. Graphic artists often use editors such as DreamWeaver to generate the HTML they need to display graphics in a Web page. However, you should understand the HTML code itself in case you need to modify an image's appearance in a way that cannot be done with HTML editors. This book assumes you have a working knowledge of HTML.

You must preview your images because display devices show images differently. The size and color of images on your screen will not match those on all of your users' screens. Monitors have variations in color, so an image can look one way on your computer, but different on another. Screens also vary in size, so images can look too big or small on other systems, even if they are just the right size on yours. You need to be aware of the variations so that you can design images that look good on all systems. The best way to do this is to test your images on a variety of systems and on a variety of browsers.

An Overview of Acquiring Images

Whether you are creating graphics for print, the Web, or other electronic media, you need to acquire images on your computer before you can edit them. You can acquire images by using graphics software or by using a drawing tablet to create them yourself.

You also can draw images on paper, and then scan them with a flatbed scanner. You can take pictures with a digital camera and import them into Photoshop, or you can take pictures with a film camera and then develop the film on slides, prints, or CDs. You can scan slides with a slide scanner, and scan prints with a flatbed scanner. You also can open images on a CD, just as you open image files on your desktop.

Regardless of how you acquire images, you often need to fix defects on an image. Some defects are the result of poor quality in the originals. A photo might include flaws, such as stray marks or inadequate lighting. A drawing might have weak colors or crooked lines. Other defects are the result of the scanning process. You must repair these defects before using the images in a Web page.

Intermediate Web Graphics: Using Background Images, Icons, Buttons, and Thumbnail Galleries

The middle third of this book covers creating and using Web graphics that do not require special HTML coding or special Web graphics software; you can create them with any image editor. These Web graphics include background images, icons, buttons, and thumbnail images. You can apply the skills covered in the intermediate section of this book to graphics that are used on or off the Web.

An Overview of Creating and Using Background Images

Web pages can display images either as single elements on a page, laid out with blocks of text, or as backgrounds behind text and other images. Background images normally tile, or repeat, across and down a page. You should create background images so that the edges match and the tiling is seamless.

You can use any combination of tools in Photoshop to create background images, but you almost always will use layers, filters, and painting tools. A new image in Photoshop has a single layer called the background layer. Other layers are transparent except where you create part of an image. You apply layers on top of the background layer to create a complete image—where the layer is transparent, you can see through it to any image part below. Web pages can include background images, and images in Photoshop and ImageReady can include background layers, although background images and background layers are not related.

Most Photoshop filters work by scanning through an image, pixel by pixel, performing a mathematical transformation as they go. The Blur filter, for example, combines the values for every pair of adjacent pixels to reduce the contrast of edges and make the image appear softer. You use painting tools to apply a color to an image.

An Overview of Creating and Using Icons

Icons include bullets, symbols, and small pictures, and are some of the most common types of Web graphics you will create. The main difference between icons and other Web

graphics is that icons are generally small, and working with small graphics requires special consideration. It can be difficult to see the edits you make, for example, and small graphics also must convey meaning in a small space.

To create icons, you need to use the various selection tools in Photoshop. You also can use vector drawing tools to create specific shapes because icons often appear in shapes other than rectangles. Icons also can have transparent backgrounds. Transparency allows rectangular images to have clear areas that let background colors or images show through.

An Overview of Creating and Using Buttons

Buttons are a special type of icon. While most icons help identify information on a page, buttons are meant to be clicked, taking users to new Web pages. Buttons and icons may both include text, which you create using the Type tool in Photoshop.

Buttons need to look specifically as if they can be clicked, and often use 3-D effects such as shadows and highlights to make them appear to pop out of the page.

An Overview of Creating Thumbnail Galleries

A gallery of images is a common type of Web page used especially to show a portfolio of products, services, or artwork. A gallery includes miniature versions of each image, called thumbnails, which link to the full-sized versions. To create many small versions of images, you could perform identical operations on all of the full-sized versions, or you could write a script that includes those operations, and then instruct Photoshop to run the script with all the images. Running a script saves time, particularly if you have hundreds or thousands of images to process. Photoshop and ImageReady include commands to generate scripts that you can use to process batches of images. At the core of batch image processing in Photoshop or ImageReady are actions, which are displayed in the Actions palette.

Whether you are creating graphics for the Web or another medium, you often need to perform the same sequences of edits on multiple images. Batch processing and scripting help you do this quickly and simply.

Advanced Web Graphics: Creating Animations, Rollover Effects, Splash Screens, and Sliced Images

The last third of this book covers advanced Web graphics. These are graphics that require special coding to appear on the Web. They include animations, rollover effects, image maps, and advanced layout.

An Overview of Creating Animation for the Web

Animation is one of the more sophisticated types of Web graphics. You can include animations in Web pages by using Flash, Shockwave, Java, SVG, MPEG, or other formats. The easiest and most common way to add animation, however, is with the GIF format. GIF files can contain single images or multiple images called frames that play in sequence

like a slide show. If the sequence of images in a GIF file plays quickly, it creates the illusion of movement similar to television or cinema. Unlike the frames of video or film, however, GIF animation frames each can play for a different duration.

You can adjust the number of frames in a GIF animation, the duration of each frame, and how many times the animation repeats. One of the most common applications of GIF animation is in the banner ads that appear at the tops of pages of most commercial sites.

An Overview of Creating Image Rollover Effects

The Web is considered an interactive medium, especially when compared to other media, because you can click links to visit one page after another. This interactivity is similar to using a magazine, where you can turn to the page you want, or to watching television, where you can tune in to any channel you want.

Web page interactivity, however, can include more than letting users click links. Using Dynamic Hypertext Markup Language (DHTML), you can create additional opportunities for user interaction, such as rollover effects, which cause images on a page to change based on user actions. DHTML is the combination of JavaScript, Cascading Style Sheets (CSS), and advanced features of HTML that work together to give Web pages true interactivity. You also can create rollover effects using JavaScript or CSS, and use JavaScript in other ways to control how images appear.

An Overview of Creating Splash Screens

Splash screens are large images or sets of images that usually appear on the home page of a site. They are similar to the splash screens on most software packages, including Photoshop and ImageReady. Splash screens can invite your viewers to your site and provide information about its contents while other images preload on the other pages of your site. Splash screens often appear on informational and personal sites.

Splash screens, however, are not very common on commercial sites. Most professional sites must show relevant information, such as a list of products and services, as soon as possible, rather than nested one click away.

A common way to create a splash screen is to use an image map. An image map is any Web graphic that relies on special HTML code to link to multiple destinations, rather than being able to link only once.

An Overview of Creating Sliced Images

While image maps are often used for splash screens, it is more common to use sliced images. You can take any image, cut it into smaller images, and position them in HTML tables. This allows you to optimize each slice separately. It also allows you to add animation or rollover effects to individual slices. Splash screens using sliced images will represent the culmination of all your knowledge of Web graphics. These types of splash screens can include backgrounds, buttons, icons, animations, and rollover effects.

CHAPTER SUMMARY

- A Web graphic is a computer file that is interpreted by software to create an image display.
- Every computer graphic file is defined either as a vector image or as a bitmap image. Bitmap images reproduce better texture detail than vector images and are the most common type of Web graphic.
- Vector images have smaller file sizes but must be rasterized before they can appear in a Web page. To use a vector image in a Web page, the Web browser must use a plug-in to convert the vector image into a bitmap image.
- Photoshop and ImageReady are the most popular programs for creating graphics for the Web. They share most features, though Photoshop has more general features, and ImageReady has more features for Web-only graphics.
- Most of the work you do in Photoshop and ImageReady involves using palettes, tools in the toolbox, and menu commands.
- You can change the scale and dimension of bitmap images and reverse your recent edits as you work with images.
- Basic work with Web graphics includes optimizing, displaying, and acquiring images. You can use Photoshop to create common Web graphics such as background images, icons, buttons, and thumbnail galleries. You also can create more advanced graphics, such as animation, rollover effects, splash screens, and sliced images, using Photoshop or ImageReady.

REVIEW QUESTIONS

1. What defines a vector image, as compared to a bitmap image?
 - a. Small file size, high detail, resolution-independence
 - b. Small file size, low detail, resolution-independence
 - c. Large file size, high detail, resolution-dependence
 - d. Large file size, low detail, resolution-dependence
2. What is rasterizing?
 - a. Converting a bitmap image to a vector image
 - b. Converting a pixel to a bitmap image
 - c. Converting a vector image to a bitmap image
 - d. Converting a vector image to a pixel
3. What can cause jagged edges in an image?
 - a. Changing the dimensions of a bitmap image
 - b. Changing the dimensions of a pixel

- c. Changing the dimensions of a vector image
 - d. Converting a vector image to a bitmap image
4. What is the purpose of plug-ins?
- a. Photoshop uses plug-ins to convert images from one type to another.
 - b. Some images must be rasterized into plug-ins before they can be viewed.
 - c. Some plug-ins work with browsers to display vector images.
 - d. The graphic artist uses plug-ins to convert images from one type to another.
5. What determines the size of an image file?
- a. For vector images, it is the dimensions of the image; for bitmap images it is the number of pixels.
 - b. For vector images it is the number of pixels; for bitmap images it is the amount of texture detail.
 - c. For vector images it is the number of pixels; for bitmap images it is the number of shapes and lines.
 - d. For vector images it is the number of shapes and lines; for bitmap images it is the number of pixels.
6. What kind of software is Adobe Illustrator and when would you use it?
- a. It is a drawing program and is used for creating bitmap images.
 - b. It is a drawing program and is used for creating vector images.
 - c. It is an image editor and is used for creating bitmap images.
 - d. It is an image editor and is used for creating vector images.
7. Which palette in Photoshop displays a small version of an image?
- a. Actions palette
 - b. Info palette
 - c. Navigator palette
 - d. Options bar
8. Which tools help you navigate an image?
- a. Airbrush tool and Eraser tools
 - b. Hand tool and Zoom tool
 - c. Move tool and Crop tool
 - d. Path Selection tools and Shape tools
9. Where do you find the option to Show Rulers?
- a. On the File menu
 - b. On the Select menu
 - c. On the View menu
 - d. On the Window menu

10. Where do you find the dialog box that lets you change the measurement units used in Photoshop?
 - a. Choose Preferences from the Edit menu, and then choose General.
 - b. Choose Preferences from the Edit menu, and then choose Units and Rulers.
 - c. Choose Settings from the Edit menu, and then choose Units and Rulers.
 - d. Choose Preferences from the File Menu, and then choose Units and Rulers.
11. If you change the scale of the image display without changing the image file, what are you doing?
 - a. Changing the image size
 - b. Changing the canvas size
 - c. Cropping the image
 - d. Zooming in or out
12. What happens when you double-click the Zoom tool in the toolbox?
 - a. The image becomes twice as large.
 - b. The image reverts to its state the last time it was saved.
 - c. The image scales to 100%.
 - d. The Zoom tool options window opens.
13. What happens if you increase the numbers in the Canvas Size dialog box?
 - a. The image is cropped by that amount and stretched to the new size.
 - b. The image is padded to the new size.
 - c. The image is stretched to the new size.
 - d. The image is scaled to the new size without affecting the image file.
14. What happens when you drag the Crop tool over an image?
 - a. A selection area appears and defines the area to be cropped.
 - b. The image is cropped.
 - c. The image is cropped, then stretched to the original size.
 - d. The image is trimmed.
15. Which command does not delete the most recent edit made to an image?
 - a. The Revert command
 - b. The Step Backward command
 - c. The Undo command
 - d. None of the above

16. What are layers?
 - a. Layers are areas of an image that can link to different destinations.
 - b. Layers are like sheets of transparent film that each contain different parts of an image.
 - c. Layers are separate channels that each contain different color information about an image.
 - d. Layers are slices of an image which can be saved as separate image files.
17. What tool is not used to create vector shapes in Photoshop?
 - a. Lasso tool
 - b. Pen tool
 - c. Shape tool
 - d. Type tool
18. What tool would you use to create a line with a hard edge?
 - a. Airbrush tool
 - b. Paintbrush tool
 - c. Pen tool
 - d. Pencil tool
19. What does the Magic Wand tool do?
 - a. Erases pixels of similar colors
 - b. Fills areas with the foreground color
 - c. Lets you define selection areas of any shape
 - d. Selects pixels in the image of a similar color to the pixel clicked with the tool
20. What tool or palette cannot tell you the numerical color value of a pixel?
 - a. Color palette
 - b. Eyedropper tool
 - c. Info palette
 - d. Swatches palette

HANDS-ON PROJECTS



Project 1: Looking at Bitmap Images

Find a Web graphic that you like and zoom in on it to see individual pixels.

1. Use your Web browser to visit a site you like that uses graphics.
2. In your browser, point to one image and hold down the mouse button (click the right mouse button in Windows). A shortcut menu appears.

3. On the shortcut menu, click **Save As** or **Save Image As**. A dialog box appears where you can specify the name and location of the saved image. Save the image as **WebImage** on your desktop.
4. Start Photoshop and open **WebImage**.
5. Enlarge your view of the image to see the individual pixels.
6. Return to your original view of the image.



Project 2: Adding Documentation

You use Photoshop's documentation features when collaborating with others on a project.

1. Open the image file **1-2.tif** from the Data Disk.
2. Select the **Notes** tool. Make sure your name appears in the Author field in the Options bar.
3. Click the image. In the text box, type a brief message, and then close the text box by clicking the small square in the upper-right corner.
4. Save the image as **1-2.psd** in the Chapter 1 folder on your hard drive. The documentation is saved with the image.



Project 3: Setting Preferences

You often need to edit the way Photoshop works with images.

1. Change the Photoshop measurement units from inches to pixels.
2. Display the rulers in the Image window.
3. Decrease the maximum number of steps the Undo feature reverses from 20 to **10**.



Project 4: Create a New Image

Practice creating new images.

1. Click the **File** menu, and then select **New**. A dialog box will appear.
2. In the **Name** text box, type **MyImage**.
3. Set the image size to **200** pixels in width and **150** pixels in height. Set the Mode to **RGB Color**. The Resolution matters only for images that are to be printed. You can ignore this option.
4. Specify that the contents are **white**.
5. Save the new image as **MyImage** in the Chapter 1 folder on your hard drive.



Project 5: Use the Image Size Feature

Stretch and shrink an image.

1. Open the image file **1-5.tif** from the Data Disk.
2. Open the Image Size dialog box.

3. Make sure that the **Constrain Proportions** check box is clear.
4. Set the Width to **88 pixels** and the Height to **400 pixels**.
5. Review the image, which should be half as wide and twice as high as the original image. You have shrunk the width and stretched the height.
6. Save the image as **1-5.tif** in the Chapter 1 folder on your hard drive.



Project 6: Use the Trim Command

Trim an image.

1. Open the image file **1-6.tif** from the Data Disk.
2. Open the Trim dialog box.
3. Set options to trim the bottom and left parts of the image, based on the lower-right pixel color.
4. Review the image, which should be cropped only on the bottom and left.
5. Open the Canvas Size dialog box.
6. Set options to pad the bottom and left sides of the image by **5 pixels** each.
7. Review the image, which should have a 5-pixel margin on the bottom and left, and a larger one on the top and right.
8. Save the image as **1-6.tif** in the Chapter 1 folder on your hard drive.



Project 7: Examine Web Sites

Determine how different Web sites use images.

1. Use your Web browser to open pages from three different sites you use often.
2. Answer the following questions:
 - Are these sites content sites, commerce sites, service sites, promotional sites, or combinations of sites?
 - How do the sites use graphics? Are graphics an integral part of the design, or are they used only for decoration?
 - Imagine that you work on creating these sites. What sort of images would you be asked to create for each site?



Project 8: Examine Online Portfolios

Learn how others design their online portfolios.

1. Use your Web browser to do an online search for graphics portfolios.
2. Visit at least three different online portfolios.

3. Answer the following questions:

- How are the portfolios similar? How are they different?
- What are the portfolios doing well? What are they doing poorly?
- How would you design your own online graphics portfolio?

CASE PROJECT



Over the course of this book you will be completing different projects that will become the elements of your final project, an online portfolio. This portfolio will include a home page, your autobiography, and a gallery of work you've accomplished. In future chapters, you will learn techniques for creating original Web graphics, and for including them in a Web page. For now, you should collect images to use in your portfolio. Begin with an image of yourself to use in your autobiography, and continue by making a list of Web sites or original illustrations or photographs you've created. Additionally, look at other online portfolios and think about ways you could imitate the design or graphics that you like.